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OMNI ICE Codes Guidance Manual

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OMNI ICE Codes

- The purpose of this manual is to provide guidance to lock personnel when entering current ice conditions into the OMNI System.
- This manual uses definitions and pictures to describe each element and the appropriate ice code.
- Parts of the existing OMNI Ice Codes seem redundant and overlap. An effort was made to clarify the codes.

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Existing OMNI System Ice Codes:

SUMMARY OF ICE CODES (X = Unknown)

ELEMENT 1	ELEMENT 2	ELEMENT 3	ELEMENT 4	ELEMENT 5
Ice Cover Extent in Percent in Tenths (00=NONE, 10=FULL)	TYPE R-Running A-Stationary P-Stopped J-Jammed F-Formed Locally S-Shore N-Anchor C-Cake H-Shell	Thickness in Inches	STRUCTURE B-Breaking H-Honeycombed T-Rotten L-Layered C-Clear G-Hanging F-Frazil S-Slush E-Sheet	Upstream Miles

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- **ELEMENT 1**
  - Ice Cover
    - **Refers to the bank to bank percentage of the Pool that is covered with ice.**
    - **Value to be entered as a Percent in Tenths**
    - **00 = None (0%), 10 = Full (100%)**
    - **For example, if the Pool were 80% covered with ice, the value to be entered into OMNI would be 8.**

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- **ELEMENT 2**
  - Type
    - Refers to the type of ice that has formed in the Pool.
    - The Types from ELEMENT 2 can be complementary to the Structure descriptions in ELEMENT 4.

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- **ELEMENT 2**
  - Type R - Running
    - Pieces of floating ice moving under the action of wind, or currents, or both. Running ice may be light or heavy, and may consist of frazil, anchor, slush, or sheet ice pieces of any size.

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- **ELEMENT 2**
  - Type A - Stationary
    - Ice that is not moving and is remaining in the same condition or state. An example would be an ice sheet.

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- **ELEMENT 2**
  - Type P - Stopped
    - Running ice that has stalled due to an obstruction in the channel or accumulation of broken ice. Could be the initial stage of an ice jam.

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- **ELEMENT 2**
  - Type J - Jammed
    - A stationary accumulation of fragmented ice or frazil, which restricts or blocks the stream channel. Jamming typically takes place upon Break up and Freeze up.

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- **ELEMENT 2**
  - Type F - Formed Locally
    - Ice that has formed in the Pool in close proximity to the dam that is not very thick and does not extend very far upstream.

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- **ELEMENT 2**
  - Type S - Shore Ice
    - Ice formed along and fastened to the shore. Shore ice does not extend across the entire width of the river. Also called Border ice.

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- **ELEMENT 2**
  - Type N - Anchor Ice
    - Submerged ice attached or anchored to the river bed, regardless of the nature of its formation.

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- **ELEMENT 2**
  - Type C - Cake (Pancake) Ice
    - Circular, flat pieces composed of frazil and slush ice with a raised rim; the shape and rim are due to repeated collisions.

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- **ELEMENT 2**
  - Type H - Shell Ice
    - Ice on a body of water that remains as an unbroken surface when the water level drops so that a cavity is formed between the water surface and the ice.
    - This would be analogous to a rapid pool drop underneath a stationary sheet of ice, which would leave the ice sheet “perched” or “hanging.”

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- **ELEMENT 3**
  - Thickness in Inches
    - **Enter the representative thickness of the ice in the Pool.**
    - **Value to be entered in units of Inches.**

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- **ELEMENT 4**
  - Structure
    - Refers to the structure of the ice that is in the Pool.
    - The Types from ELEMENT 2 can be complementary to the Structure descriptions in ELEMENT 4.

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- **ELEMENT 4**
  - Structure B – Breaking Ice
    - A disintegrating ice cover.

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- **ELEMENT 4**
  - Structure H – Honeycombed (candled) Ice
    - Decayed sheet ice that assumes the appearance of thin vertical crystals shaped like a honeycomb or candles. Rotten columnar-grained ice.

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- **ELEMENT 4**
  - Structure T - Rotten Ice
    - Ice in an advanced stage of disintegration.

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- **ELEMENT 4**
  - Structure L – Layered Ice
    - An ice sheet containing distinct layers. An example would be snow ice: ice that forms when snow slush freezes on an ice cover. It appears white due to the presence of air bubbles.

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- **ELEMENT 4**
  - Structure C – Clear Ice
    - Transparent, highly reflective ice formed in rivers and lakes.
    - Also known as black, or glare ice.

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- **ELEMENT 4**
  - Structure G – Hanging (ice) Dam
    - A mass of ice composed mainly of slush or broken ice deposited under an ice cover.
    - In larger, deeper rivers, frazil produced in upstream reaches may be carried downstream and be transported beneath the fixed ice cover where it may be deposited and form large accumulations that are called hanging dams.
    - Deposits may be of great depth and block large portions of the river's flow.

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- **ELEMENT 4**
  - Structure F – Frazil Ice
    - Fine, small, needle-like structures or thin, flat, circular plates of ice suspended in water. In rivers and lakes it is formed in supercooled, turbulent water.

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- **ELEMENT 4**
  - Structure S – Slush Ice (Frazil Slush)
    - A floating agglomeration of loosely packed frazil ice that remains separate or only slightly frozen together.

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- **ELEMENT 4**
  - Structure E – Sheet Ice
    - Whether by the shore ice meeting in the center or by a more rapid freeze up of the pancake/frazil ice, when the river is completely covered it is referred to as sheet ice

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- **ELEMENT 5**
  - Extent in Miles Upstream
    - **Enter the distance that the ice in the Pool extends upstream.**
    - **Value to be entered in units of Miles.**

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- **REFERENCES**
  - **USACRREL River Ice Guide**
    - **http://www.crrel.usace.army.mil/ierd/ice_guide/iceguide.htm**
  - **Winter Navigation on Inland Waterways**
    - **EM 1110-8-1(FR) – 31 December1990**

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- **Questions?**
  - **Please contact Water Control Personnel**
    - **309-794-5258**